
ILLINOIS CENTURY NETWORK

REPORT ON USER FOCUS GROUPS

MAY 2006

Illinois Century Network User Focus Groups

Executive Summary

May 2006

In the spring of 2006 four focus groups were conducted across Illinois with users of the Illinois Century Network (ICN) to gather input regarding the type of services and applications the ICN helps users deliver, the impact on services resulting from any ICN limitations, and users' future needs and plans for services. Locations for the groups included Bloomington, Chicago, Glen Ellyn, and Mt. Vernon and participants represented schools, colleges, libraries, municipalities, and health care facilities.

Users indicated their organizations first connected to the Internet primarily for email and research capabilities. When the ICN became available, they elected to use it as their provider because of the low cost, expanded capacity, reliability, and better service.

Participants indicated that the types of applications and services now used by their organizations have changed exponentially from the late 1990s. In schools, the Internet is now used to support instruction, communications, academic services, and management operations. In schools, Internet traffic was previously outbound — students and teachers using educational resources provided by others. Now, there is considerable inbound traffic from students, teachers, and parents — checking homework, grades, and schedules. Students have access to individualized instruction from both school and home. Libraries use ICN to handle transactions such as checking out books, updating and using catalogs, ordering, and managing inter-library loans. Community colleges provide many on-line courses and almost all courses are supported by Internet resources. Public and private universities use the Internet to deliver distance learning and to support most courses and student-to-faculty communications as well as

institutional research. The Virtual High School provides courses for high schools throughout Illinois. Municipalities use ICN to support public services including homeland security communications, 911 dispatches, and emergency medical services.

Regarding limitations of the ICN, participants cited bandwidth concerns and resulting slow-downs at peak usage times. New high definition video requirements are pushing ICN bandwidth needs. At every focus group participants also commented on the increasing sophistication and aggressiveness of ICN's commercial competitors but reported moving certain services from ICN to other providers in order to maintain service at the lowest cost.

“Last Mile” issues were also of concern particularly to downstate participants who indicated the cost of establishing a connection to ICN was a major problem. Some rural schools have to go through multiple telephone companies to establish a connection to ICN. Many users indicated they would be glad to pay ICN rather than multiple providers for last-mile connections.

Some participants cited ICN policies that negatively affect their ability to create mutually beneficial connections; schools that want to network within their own district indicate they have a T1 line to each building but would lose lines if they connected the schools to a district network under current policy. Nor is sharing of bandwidth permitted and network links between K-12 and community colleges are not currently feasible.

Regarding services and member benefits, most participants agreed that reliability and quality of service were strong attributes of the ICN. Indicating they rarely have to call

the ICN with a problem, they cited the regional technology staff as very helpful. The pricing structure, however, was cited as based on 1997 standards and a disincentive to expanding capacity. Suggestions from schools for revising the cost structure included redefining the FTE allocation based on only students to include faculty, staff, and parents, all of whom are extensive users of the system.

Participants cited equipment discounts as an important benefit, but also cited the need for ICN to renegotiate prices as individual users are now able to obtain the same equipment at a better price. Communications to the users from the Policy Committee and the Advanced Engineering Taskforce also need to be improved as well as more regional meetings conducted as users indicated they receive no information on ICN developments.

In terms of future needs, participants indicated Internet applications are increasing and the numbers of users are growing. Activities such as high-definition broadcast quality video, on-demand video streaming, and wireless access will require more bandwidth and that ICN should focus on expansion of the basic bandwidth. Participants mentioned Illinois' dark fiber and suggested that capacity is available through that source. While bandwidth was the primary concern for the future, participants also suggested that ICN assist with disaster recovery by developing security systems and solutions such as off-site storage, redundant lines, and alternate means of transmission as well as monitoring attacks.

Priority concerns were summarized as follows:

- **A need for more bandwidth.** The priority need or concern in every focus group was for more bandwidth to carry voice, data and video traffic.

- **A need for adjustments in the cost recovery funding model.** Another top priority of every focus group was for adjustments to the current cost recovery funding model put in place in the early years of the ICN.
- **Increased competition from other providers was hurting ICN.** Focus group participants repeatedly referred to aggressive competition from telephone companies, cable providers, and other Internet service providers; many were beginning to use other providers in addition to the ICN.
- **A concern about future planning for the ICN.** Participants at every focus group expressed concern that the ICN was not keeping up with trends in technology.
- **A need for more communication from ICN.** In every focus group there were expressions of concern about the lack of communication and regional meetings from the ICN.

Illinois Century Network User Focus Groups May, 2006

Background

The Illinois Century Network (ICN) is a telecommunications backbone providing high speed access to data, video, and audio communication in schools and libraries, at colleges and universities, and for museums, local government and state agencies. Both state and user-funded, it began operation in Illinois in late 1999.

Since its creation, the use of technology has grown exponentially as have the applications supported via the Internet by schools, colleges, and other public services. In the 2005 Advanced Engineering Taskforce Report, the group proposed the ICN participate in a strategic planning process. Early in 2006, ICN staff responded by proposing a new planning effort to clarify and redefine goals and identify priorities for the ICN over the next 3-5 years. A key part of this planning effort was to gather input regarding the type of services and applications the ICN helps users deliver, the impact on services resulting from any ICN limitations, and users' future needs and plans for services as well as the resulting implications for the ICN. In order to address these concerns, a series of focus groups of users representing various constituencies were convened across Illinois during the latter part of April and early May 2006.

Objectives

The specific objectives of the focus group discussions were to:

1. Identify the type of services and applications being delivered via the ICN.
2. Identify how any limitations in ICN services and bandwidth capabilities may have affected user activities.
3. Identify future service needs of users and their constituents.
4. Identify member benefits that need to be improved or additional benefits that should be provided.

Study Procedure

The ICN maintains a Policy Committee and an Advanced Engineering Task Force which function in an advisory capacity to ICN staff. Members of these committees were contacted by ICN staff and asked to recommend users who

could address technical concerns to represent their constituencies – colleges, K-12 schools, libraries, museums, health care facilities, and municipalities - to participate in the focus groups. The nominees were contacted by e-mail and by phone by ICN staff to solicit their participation. Focus group sizes ranged from 5-8 members and four groups were conducted to represent the geographic areas of Illinois. These groups were in Mt. Vernon, Bloomington, Glen Ellyn, and Chicago. A list of participants is shown in Appendix A. Each session was conducted by a moderator with two assistant moderators present. Each session lasted about 90 minutes and was audio taped. Questions used in the discussion were developed and reviewed by ICN staff and the Chairman and Vice-Chairman of the Advanced Engineering Task Force. Each group was asked the same core questions shown in Appendix B. Moderators discussed common perceptions and opinions expressed by the participants after each session and a draft report of the analysis was reviewed by the moderators upon completion of the sessions.

Results

Original Internet Access

Participants were asked to think about when their organization first connected to the Internet, the reasons for the connection at that time, and what caused them to switch to the ICN. Chicago participants noted that in the 1990s, Area 1 Chicago established connections for schools through the Regional Office of Education (ROE). However, the original plan for the ROEs to serve as hubs throughout the state did not work. Net Illinois, Linc-on, commercial providers, and services through Argonne National Laboratory were also mentioned. The central and southern Illinois participants mentioned several ways that they obtained Internet access in the early years including 56k dial-up connections, Access US, and a “T1 line that ran through a farmer’s field and got plowed up every spring.” The educators participated in Net-Illinois and Linc-on before ICN was developed.

Applications mentioned by participants included email, library cataloging, exchange of patient data, and distance learning. College and university participants said that the demand for internet access arose from research collaboration across the country as well as the need for use of educational resources. Once Mosaic, the first Web browser, was in place, the usefulness of the Internet for education and research skyrocketed. School representatives noted that email and access to Yahoo were the main uses initially, but “the Internet opened up the world” for K-12 students.

Participants indicated that when the ICN became available, they switched because of the low cost, expanded capacity, reliability, and better service. Cost was considered to be the most important factor. A T1 line was available through commercial carriers at the time but at 10 times the cost of the ICN. For the first

years, some users maintained a backup, but ICN soon established an unparalleled reputation for reliability and most dropped their other providers.

Present Uses of the ICN

Participants indicated that general Internet connectivity is the primary use of the ICN. “No one asks what do you use electricity for? The Internet is the same, it is pervasive, it is a utility.” The Internet is used to support instruction, academic services, management operations, and communications. All sectors now have reporting requirements that they are mandated to submit via the Internet. Much of the business of schools, colleges, and universities is conducted over the Internet. Participants indicated that ICN content filtering services have assisted schools and libraries in fulfilling mandates that Internet access be restricted for young people. Communications and support for teachers provided by the ICN assist school districts in meeting many of the mandates of the *No Child Left Behind Act*. “Collaboration is faster and easier. It’s not uncommon to have ten English teachers collaborate across the state. Email is critical; they would hang us if we took it away.” More specific comments by constituency are shown below.

Schools In schools, the traffic used to be almost entirely outbound—students and teachers using educational resources provided by others. Now, there is considerable inbound traffic from students, teachers, and parents—checking homework, grades, schedules, etc. “Students do homework on line so parents can get on with them and get involved.” Students have access to individualized instruction from both school and home. Some participants indicated that the use of two-way interactive video has declined because teachers are more comfortable using the Internet. The Illinois Virtual High School provides courses for high schools throughout the state. In schools, many teachers use the Internet to enhance or extend instruction. “It’s rare to walk through a school building and not see an instructor using some on-line content in the teaching and learning environment.” One participant noted that about 25 percent of the teachers are now “Internet dependent,” they rely on it so much that “they would be crippled without it.”

Libraries “Libraries have become almost entirely virtual.” Libraries use ICN to obtain access to online journals and other resources and to handle all library transactions—checking out books, updating and using catalogs, ordering, and managing inter-library loans. Just as online journals have replaced paper, video streaming has replaced film libraries and video tapes. Available content has been expanded to include coverage of current events by the media.

Colleges and Universities Community colleges provide a large number of on-line courses and almost all courses are supported by Internet resources. Public and private universities use the Internet to deliver distance learning and to support most courses and student-to-faculty communications. In addition, the

Internet and Internet2 support research, exchange of data, and collaboration across the country.

Municipalities Municipalities use ICN to support public services—homeland security communications, 911 dispatch communications, wants and warrants information for police, and emergency medical services. “Our 911 center relies on this technology.” They also provide access to records, forms, and local information.

Health Facilities The ICN and the Internet are resources that have contributed to successful grant applications to the National Science Foundation and National Institute of Health. Health officials reported the need to use the ICN to contact specialists on a wide variety of diseases and cases from different types of patients throughout the world. The veterinary service at the Brookfield Zoo has links with the College of Veterinary Medicine at UIUC. Students studying veterinary medicine and conservation medicine take courses via video conferencing.

A summarized list of uses of the ICN is shown below:

Instruction

- Interactive video classes
- On-line courses – high school, colleges, medical
- Continuing education for medical practitioners
- Teacher professional development
- Telemedicine (veterinary and humans)
- On-line seminars for graduate students, interns, and residents
- Access from home to work and other applications for students and staff
- Web-enhanced courses
- Just-in-Time instruction
- Streaming audio and video
- Employee training

Management and Operations

- Library automation – place orders, check out books
- Online library resources and catalogs
- Course registration and program admissions
- Communications with faculty and students
- Parent & student access to school schedules, grades, and homework
- Video conferencing
- Credit card verification
- Identification & background checks
- Remote administration
- Web-hosting
- Emergency communications
- Court hearings
- Access to forms

Key Benefits of the ICN

As part of the discussion on uses of the ICN, participants were asked what they would say about the ICN if they were to recommend it to someone not using it. Responses were grouped into the following categories.

Reliability ICN staff monitor the network continually on a 24/7 basis. Regional staff provides contact availability when questions on difficulties arise and, “It was designed by good people.”

Price and Capacity ICN brings the power of group negotiations with phone companies and other technology companies. The size and reach of ICN extends to all areas of the State of Illinois and provides high speed access to rural areas.

Problem Solving Without ICN, each school district would have to deal directly with an ISP to solve any problems. ICN intercedes and makes sure that problems are solved. It serves as a single point of contact. Not only does ICN take care of problems when called upon, it monitors the system constantly and takes care of problems before they are apparent at the local level. “I’d much rather call ICN for trouble than AT &T.”

Efficiency Because the routers are maintained by ICN, individual users do not have to be CISCO equipment experts and maintain expertise locally.

Limitations of ICN Services and Bandwidth

Participants were asked about the limitations in ICN services including bandwidth and the impact of any limitations on services to clients. Responses are summarized by topic below.

Bandwidth Concerns Several constituents reported that at peak usage times there is some slow-down and occasionally complaints from their users. Many have resolved these complaints by using other service providers in addition to ICN. Several college representatives mentioned that one solution was to move student email to a separate provider; others move instructional-related activities to other providers. Some have trouble with video conferencing and as a result, events are scheduled at inconvenient times. Others noted limiting certain activities during peak hours. Participants reported tremendous growth in video streaming and on-demand Internet by teachers and faculty in the classroom noting that it was previously used to “extend” their classes but now is “integrated.” Comments also related to new high definition requirements and how they are pushing ICN bandwidth “beyond the envelope.” Other comments related to limitations included:

- “We can’t download images from the National Institute of Health due to ICN limitations.”
- “The earthquake center at our institution could not receive national and international data due to ICN bandwidth limits.”
- “We can’t tell people ‘no’ but we have to give up something else to accommodate them.”

- *“With the work the museums are doing now, ICN connections will be inadequate to transmit their information.”*

Competition Participants at every focus group noted the increasing sophistication and aggressiveness of ICN's competitors. Phone companies are packaging and bundling services so that significant savings on telephone services make the move to them an easy decision. “I’m concerned that ICN has become nothing more than another ISP and is not keeping up.” “I’m paying the same price for 9 megs from ICN that I get for 15 megs from [a commercial provider].”

One participant indicated that the cable companies are willing to sell 2.0 mbps at a reasonable rate and another university participant is shifting most of their activity to a commercial provider and using ICN only for a backup.

Downstate community colleges indicated needing a full T1 for interactive video and a second for other functions. The increased use over the base bandwidth costs more from ICN than it would from a local provider. Additional fees are usually more than the basic service costs. In general, users are paying for extra T1s, either through ICN or a second provider, because they don't have any choices.

Suburban participants reported that they could get 1 mbps for \$30 to \$60 from just about any provider while they had to pay \$250 for that increment over the base from ICN. One entity had just left ICN because they were able to negotiate a better financial arrangement with a telco that packaged Internet with telephone service. As a result they were able to obtain 4 T1s for the price of 1 T1 with ICN. The package was attractive particularly because the big savings were in the telephone service.

Participants in rural areas indicated that the cost structure needs to be changed noting that the telcos are bringing in DSL (Digital Subscriber Line) at a good rate and some schools may be leaving ICN. The vendors give them wireless capability and students are beginning to expect it. ICN's vendor in that area doesn't have wireless capability. Some participants also indicated, however, that ICN should not get into the wireless business.

Last Mile “Everything ICN does, they do wonderfully, but I am better off spending money on pipe than money getting to pipe.” Participants from rural areas noted that while they understood that ICN did not address “last mile” problems, the cost of establishing connection to ICN was a major problem. One community college built its own wireless network to enable its campuses and rural schools to reach the ICN point-of-presence (POP). Another had to pay \$1,200/month to connect to an ICN POP 15 miles away, while a commercial provider charged only \$300 for the same service accessible close to campus. Some rural schools have had to go through multiple telephone companies to

establish a connection to ICN. Many users indicated they would be glad to pay ICN rather than multiple providers of last-mile connections.

Pricing Policies “ICN has not made it easy to be creative and cooperative.” School districts that want to network indicated they are disadvantaged. They might have 12 T1 lines, one for each school, but could drop to 4 T1s for a district network. Other types of collaboration are also limited. Sharing of bandwidth is not permitted. Collaborative networking links between K-12 and community colleges are not feasible. If libraries are networked they cannot have another line and redundancy is needed to support operations. “The cost recovery model used today is a 1997 model – people at home have more (capacity) at the same price.”

Keeping Up to Date Several participants raised concerns about ICN keeping up with developments in technology and developing and expanding existing services. “We were state of the art five years ago, but not anymore.” In addition, they worried about on-going planning for the future needs of constituents. “The ICN staff used to stay on top of things, but not now. There is no time for creative thinking because they are scrambling to keep up the basics.” Participants also indicated that they hoped the new strategic plan would, “help us with emerging issues.”

Continued Use of ICN Despite the concerns expressed about the impact of limitations in services and bandwidth, most of the participants reported that they continue to use the ICN for the following reasons:

- Reliability
- Single point of contact for solving problems
- Service
- Cost

Concerns and Areas for Improvement in Services and Member Benefits

Participants were also specifically asked to comment on any improvements needed in member benefits and services. Discussion on topic areas is described below.

Reliability, Service and Cost Most participants agreed that reliability and quality of service were strong attributes of the ICN and that the base cost was reasonable. “Great reliability...I can’t remember the last time it went down.” Many participants also mentioned the name of a helpful, knowledgeable ICN staff member at a regional center. However, some caveats were mentioned; “We have more technical support coming from Cisco now than ICN,” and “ICN staff said my proposal was feasible but they didn’t know who to talk with [at Central Management Services] to make it happen.”

Cost Recovery/Funding Model Participants indicated that the pricing structure is based on 1997 standards and is a disincentive to expand capacity and everyone needs to expand capacity. “The current model discourages expansion...look at removing the free base.” The limit to 1.5 mbps for the smallest schools and organizations on a T1 line is a problem and the costs for going above that are too high. One organization has a 6.0 mbps line but has to pay more for use over 4.5. “We have run into the ceiling at DS3.”

Some participants indicated that ICN's costs for the network had gone down substantially in the past five years, but those savings had not been passed on to the users. Some suggested that ICN has capacity that is not fully used and could be made available at a lower cost to users. “Co-pay is a good idea, but the base is too low.”

Specific recommendations regarding the pricing structure included:

- Revise the FTE allocation definition. FTE is currently based on student enrollment. It doesn't include faculty and staff, parents, and others who are also extensive users of the system.
- Base prices on the cost of technology
- Consider the applications in use
- Consider variable rates for local intranets, traffic within ICN, and external traffic.
- Enable networking without penalty
- Establish partnerships with commercial providers

Helpdesk Most participants indicated that that they rarely have to call ICN about a problem. It is more likely that they are contacted when someone wants to change or redesign services. “The local people are wonderful.” There was a period of time when users didn't know who to contact when they had a problem. According to downstate participants, the Chicago helpdesk didn't know anything about downstate. Users lost connection with the local people who knew exactly “what port on what router needed to be fixed.” Things have improved significantly. Participants advised that ICN continue to keep regional tech support involved in providing services.

Chicago and suburban participants noted that they frequently go around the prescribed help system and talk directly to individual ICN staff members whom they know. They also noted that increasingly, staff doesn't have time to deal with problems the way they have in the past. It appears that turnover has been high among ICN staff and new staff members are not always up to speed. “Turnover on ICN staff has hurt services.”

Purchasing One participant suggested that expanded group purchasing for equipment would be useful. The CISCO discount is an important benefit and users have saved thousands. Several participants said that ICN has essentially

established a price ceiling that is beneficial but users can sometimes get better prices going directly to CISCO or through private vendors. Municipal representatives noted that they were no longer eligible to participate in the purchasing agreements. Other participants suggested ICN offer equipment discounts from other vendors in addition to CISCO.

Improve Communications “ICN needs to talk to us.” Communications to the users from the Policy Committee and the Advanced Engineering Taskforce needs to be improved. Southern Illinois representation on these groups needs to be increased. Regional meetings of ICN staff and constituents have not been held recently and no information is going out about ICN developments. Previously these meetings were very useful for users to learn of developments and for ICN to get user feedback. “We need more road shows telling us what comes next...ICN doesn’t market stuff.”

Other Concerns Several participants stated that ICN is not currently structured to facilitate collaborative relationships among constituents. “Collectively, we spend more and do less.” Comments indicated that sharing could be built into ICN models. One participant noted that the ICN staff could provide useful and reliable advice to constituents as they develop their systems. “Now they cannot go beyond the border router.” Another participant stated that in regard to homeland security, institutions and organizations are not able to maintain mandated connections (e.g. to state police) over ICN and have to maintain separate dedicated lines for these purposes.

Some participants expressed concerns about the budget for ICN and apparent loss of support. Community college representatives mentioned the loss of the Advanced Technology Grants that had been administered by the Illinois Community College Board.

Future Needs

Participants were asked about new features, services, and activities they will need ICN to support in the future including increased demands resulting from governmental mandates. Responses are categorized below.

Bandwidth Participants indicated that applications are increasing and the numbers of users are growing. Activities such as on-demand video streaming, high-definition broadcast quality video, and wireless access will require more bandwidth. Voice Over IP is particularly important for overseas communications. “Everything new is going there.” Regardless of the different types of new and expanded uses - “all the various applications are just traffic” - some participants advised that ICN should focus on providing bandwidth - “just give us the pipe” - and on expansion of the basic bandwidth available. Several participants mentioned Illinois’ dark fiber (unused fiber optic cable laid along Illinois highways

and managed by the Illinois Department of Transportation) and suggested that capacity is available. One participant noted that dark fiber covers 70 percent of the state. Another commented that, "The Illinois Lt. Governor's plan to give a laptop to every 7th grader will be a huge new bandwidth demand."

Expanding bandwidth will allow increased collaboration among institutions and organizations. The Brookfield Zoo, Lincoln Park Zoo, Shedd Aquarium, Loyola University, and UIUC would like to expand seminars and coursework, sharing cases in real time for teaching and telemedicine. Digital images will aid consultation with specialists at remote sites. "In order to exchange virtual images, we will have to pay big to do so."

Institutions indicated they do not have the option of cutting back on the services they provide. "We cannot afford to not provide services so we find other ways to do that." Their basic operations depend on these services, however, they are challenged to keep up given fixed budgets and increasing demand. One participant asked, "Do you want students to spend their money attending the University of Phoenix, or to have affordable education in the State of Illinois?" Another downstate participant stated, "We can't end up creating a workforce not able to compete globally or even with those from richer suburban areas."

Security and Disaster Recovery Participants suggested that now is the time for ICN to develop security systems and solutions, monitor attacks, and deal with the huge variety of needs in that area. It was noted that it would be difficult for ICN to come up with solutions that would work for everyone. All groups suggested that they had needs for off-site storage to facilitate disaster recovery.

Other Future Needs

- Several participants would like to see Internet2 connections but, because of the current cost-sharing structure, noted that it will be too expensive.
- Several participants mentioned that spam filtering is needed and relatively simple to offer. One college noted that nearly 80 percent of their email is spam.
- One participant concluded that ICN could provide everything that is not the core business of schools—email hosting, bandwidth shaping, web hosting, web CT, and data warehousing.
- One municipality suggested that ICN could house and maintain servers that could be managed by users remotely. "Could we use ICN to build our network to a private data center in Springfield?"
- It was noted that ICN can provide assistance for compliance with recent mandates that Internet providers give access to data to law enforcement agencies upon request under the Federal Community Law Enforcement Act (CLEA).
- Some participants advised that ICN should not become a 'jack of all trades' and should avoid expansion, particularly if staff become spread too thin. ICN

does not need to do email hosting, wireless, or web hosting—the institutions can take care of that by themselves. Expanding service to the commercial side would also dilute the services for education and not-for-profit organizations.

Summary Comments

Participants were asked to summarize their thoughts through two questions, one related to what they would want to tell the Governor about the ICN and other to identify their priority need or concern that was discussed. A summary of responses is provided in the following sections.

Message to the Governor

- ICN is an excellent statewide network that is doing the job. We should be proud of it and publicize it.
- Funding of ICN is critical to the needs of education and libraries. Keep the qualified people at the regional offices.
- Don't abandon ICN. It could be the most powerful tool for Illinois schools, institutions, and agencies.
- The state has a social responsibility to delivery services to small areas of the state; ICN can help do that.
- ICN provides substantial benefits at a very low cost to the state.
- ICN should be an independent entity within state government.
- ICN needs to focus on its constituents.
- ICN has grown but the staff and budget have not kept up.

Priority Need or Concern

- Increase bandwidth
- Maintain value
- Adjust/revise the cost structure for bandwidth and the funding model
- Keep local service/support people
- Maintain reliability
- Focus on constituents
- Offer comprehensive solutions , not piecemeal solutions
- Engage in planning for the future
- Improve communications
- Improve marketing
- Engage in collaborative partnerships with commercial providers
- Allow for economical collaboration with other institutions

Conclusion

In Thomas Friedman's, *The World is Flat; a Brief History of the 21st Century* (2005), he attributes the leveling of the global marketplace to a number of factors, three of which demonstrate the change since the last ICN strategic plan: (1) the wide-spread proliferation of computers at home, school and work, (2) the exponential growth in the use of the Internet and web browsers, and (3) increasing communication through the use of common web-based software applications. The focus group discussions bring to bear this rapid but quiet growth and the need for ICN to meet bandwidth requirements and plan for the future of the ICN. The focus groups provided insight to a number of issues related to ICN planning efforts. In summary, participants indicated:

- **A need for more bandwidth.** The priority need or concern in every focus group was for more bandwidth to carry voice, data and video traffic.
- **A need for adjustments in the cost recovery funding model.** Another top priority of every focus group was for adjustments to the current cost recovery funding model put in place in the early years of the ICN.
- **Increased competition from other providers was hurting ICN.** Focus group participants repeatedly referred to aggressive competition from telephone companies, cable providers, and other Internet service providers; many were beginning to use other providers in addition to the ICN.
- **A concern about future planning for the ICN.** Participants at every focus group expressed concern that the ICN was not keeping up with trends in technology.
- **A need for more communication from ICN.** In every focus group there were expressions of concern about the lack of communication and regional meetings from the ICN.

Appendix A: Focus Group Participants

Chris Adams
Peoria County

Amy Al-Sabibi
Champaign Public Library

Guy Ballard
Niles Township HSD 219

Harold Barnes
Illinois Valley Community College

Bob Barton
Matteson Elementary SD 162

Chris Clark
Shawnee College

Alex Cline
Illinois Eastern Community College

Steve Dorner
Chicago Public Schools

Bob DuClos
Area VI Hub

Jim Gonsiorek
City Colleges of Chicago

Larry Hopkins
Kane Region Office of Education

Herb Kuryliw
Northern Illinois University

Tom Meehan
Chicago Zoological Society
Brookfield Zoo

Jim Murphy
City of Quincy

Carl Oder
Rush Presbyterian-St. Luke's
Medical Center-Chicago

Paul Peterson
Peoria County

Doug Rash
Ferrell Hospital

Scott Reed
Southeastern Illinois College

Ron Robbins
Bradley University

Lee Spaniol
Lake Land Community College

Tom Steele
Manteno SD 5

William Stevens
Lewis and Clark Library System

Ross Stroup
Shawnee College

Samuel Sudhakar
Carl Sandburg College

Steve Terrell
Illinois Math and Science Academy

John Wade
Oakton Community College

Todd Williams
Marion CUSD 2

Linda Scott Zaleski
Cooperative Computer Services
Arlington Heights

Appendix B: Focus Group Core Questions

1. Think back to when your institution or organization first connected to the Internet. Did you connect to the state network or to some other provider?
 - What made you decide to connect to the ICN or to another provider?
 - For what reasons did you want to connect to the Internet?
2. Let's focus on today and talk about what the ICN allows you to do presently. How do you use the ICN, what services does it allow you to provide to your users?
 - In what way does it support the mission-critical applications of your institution?
 - How do you use it to fulfill state/federal mandates?
3. How have limitations of ICN services and bandwidth capabilities affected your activities?
 - Have you had to curtail any offerings or services?
 - What feedback, if any, have you received from users about limitations?
 - What is the impact of any current limitations on your users?
4. Take a look at this list of ICN member benefits. First, were you aware these services are being offered? Are there member benefits and features of the ICN that need improved and if so, how?
 - What about reliability?
 - What about the Help Desk?
 - What about the rate structure?
5. Looking ahead what will you need from the ICN in the future?
 - What new features, services, and activities will you need the ICN to support?
 - How do those services affect the mission-critical applications of your institution?
 - What is the potential impact on your users if these additional needs are met? Not met?
6. Let's talk about member services and benefits again. Are there other services the ICN should support or provide?
7. Suppose you had one minute to talk to the Governor about the ICN. What would you say?
8. As we close, of all the needs and concerns we discussed, which one is most important to you?